



**UNIVERSITI PUTRA MALAYSIA**

**EFFECTS OF STRUCTURAL ADJUSTMENT  
PROGRAMS ON SAVING, INVESTMENT AND GROWTH:  
A CASE STUDY OF SUDAN**

**AHLAM ABD ELHADI HASSAN**

**FEP 2003 1**

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**DOCTOR OF PHILOSOPHY**

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**By**

**AHLAM ABD ELHADI HASSAN**

**Thesis Submitted to the School of Graduate Studies,  
Universiti Putra Malaysia, in fulfillment of the requirement for the Degree of  
Doctor of Philosophy**

**April 2003**



**DEDICATED TO MY MOTHER, MY FATHER  
MY BROTHERS AND SISTERS  
THOSE WHO HAVE CONTRIBUTED SOMETHING INTO MY LIFE**

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirements for the degree of Doctor of Philosophy

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AND GROWTH: A CASE STUDY OF SUDAN**

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**AHLAM ABD EIHADI HASSAN**

**April 2003**

**Chairman: Professor Mohd. Ghazali Mohayidin, Ph.D.**

**Faculty: Economics and Management**

Sudan economy has experienced a prolonged period of internal and external imbalances. Inappropriate policies have caused misallocation of resources and the lowering of productivity and employment. Macroeconomic instability placed further strain on growth by reducing investors' confidence in the economy. To cope with the situation, Sudan, by the end of fiscal year 1978, has resorted to international borrowing which ushered in the Structural Adjustment Programs (and stabilization): the reform measures required by the International Monetary Fund and the World Bank as a condition for their loans.

The Structural Adjustment Program is an economy-wide, all embracing, and comprehensive set of policy reforms aimed at expanding and strengthening the role of the market forces for efficient allocation of resources. The main objective of the study is to examine the effects of the Structural Adjustment Programs on the Sudanese economy. In particular, the study analyzes interactions between structural reform and selected macroeconomic variables including saving, investment and growth. Annual data covering the period 1955 to 1998 was used.

A six-equation model with six variables was used in the study. A dummy variable was included as an exogenous variable to capture the effects of a Comprehensive Strategy Structural Program, which was implemented in Sudan.

The results of this study indicate that there was a positive correlation between growth, investment, and savings and show the important role of structural reform in determining all three variables. The structural programs in the Sudanese economy had positive effects on saving and investment, but its impact on the growth rate was negative in the short run. The findings tend to confirm the predominant view that sound macroeconomic policies and structural reforms are crucial for saving, investment and growth .

To improve the productivity of investment, the Sudanese government should identify and undertake investments that have positive net returns. Increased emphasis on education and the adoption or maintenance of outward oriented policies, for example removal of export taxes, and improvement in investment policies, in all fronts, are needed. These are capable of stimulating investment and spurring sustainable long-term economic growth.

Coordination and better targeting of foreign assistance resources on specific projects that can create the conditions for trade and saving, are required; knowing that foreign assistance can be used strategically to foster reforms.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia Sebagai  
memenuhi keperluan untuk ijazah Doktor Falsafah

**KESAN PROGRAM PENYESUAIAN STRUKTUR TERHADAP  
TABUNGAN, PELABURAN DAN PERTUMBUHAN: KAJIAN KES SUDAN**

Oleh

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Ekonomi Sudan telah mengalami ketidakseimbangan dalaman dan luaran bagi satu tempoh yang berpanjangan. Dasar yang tidak bersesuaian telah menyebabkan penyalahgunaan peruntukan sumber serta penurunan tahap produktiviti dan pekerjaan. Ketidakstabilan makro ekonomi memberi tekanan yang lebih tinggi kepada pertumbuhan dengan mengurangkan keyakinan pelabur. Untuk mengatasi masalah ini, Sudan, pada akhir tahun belanjawan 1978, terpaksa menggunakan pinjaman antarabangsa yang mendorong terlaksananya program pelarasan struktura (dan penstabilan): cara pemulihan yang dikenakan oleh *International Monetary Fund* dan Bank Dunia sebagai satu syarat keatas pinjaman mereka.

Program pelarasan struktural adalah satu program menyeluruh yang merangkumi satu set dasar pemulihan yang komprehensif dan ia bertujuan untuk mengembang dan mengukuhkan peranan kuasa-kuasa pasaran demi kecekapan peruntukan sumber. Objektif utama kajian ini adalah untuk mengkaji kesan Program Pelarasan Struktural atas aspek-aspek terhad dalam ekonomi Sudan. Khususnya, kajian ini akan menganalisis interaksi antara pemulihan struktural dan angkubah-angkubah makro ekonomi termasuk tabungan, pelaburan dan pertumbuhan. Data tahunan bagi tempoh 1955 hingga 1998 akan digunakan.

Pembentukan satu set 6-persamaan dengan 6 angkubah telah digunakan untuk setiap model. Satu angkubah pepadang di sertakan sebagai satu angkubah luaran bagi mendapatkan kesan Program Struktural Strategi Komprehensif yang dilaksanakan di Sudan.

Hasil kajian ini menunjukkan terdapat korelasi yang positif antara pertumbuhan dengan pelaburan, dan tabungan dan menunjukkan peranan penting yang dimainkan oleh pemulihan struktural dalam menentukan ketiga-tiga angkubah. Program struktural dalam ekonomi Sudan mempunyai kesan positif atas tabungan dan pelaburan, tetapi dalam jangka masa pendek impak keatas kadar pertumbuhan adalah negatif. Temuan ini menyokong kebanyakan pendapat bahawa dasar makro ekonomi yang kukuh dan pemulihan struktur penting bagi tabungan, pelaburan dan proses pertumbuhan.

Untuk memulihkan semula ekonomi Sudan, kajian ini menyarankan cadangan-cadangan berikut:



Untuk mempertingkatkan produktiviti pelaburan, Kerajaan Sudan seharusnya mengenalpasti dengan lebih jelas jenis-jenis pelaburan yang memberi pulangan bersih yang positif.

Penekanan yang lebih tinggi terhadap pendidikan dan menerima pakai atau pemantapan dasar yang berorientasikan ke luar, dalam semua hal terkemuka, dijangka akan memainkan peranan yang penting bagi mendorong pelaburan dan mempergiatkan kelestarian pertumbuhan ekonomi jangka panjang.

Meletakkan sasaran yang lebih baik dan mengkoordinasikan sumber-sumber bantuan asing yang boleh mewujudkan syarat-syarat perdagangan dan tabungan, dengan kesedaran bahawa bantuan asing boleh digunakan secara strategik untuk menjalinkan pemulihan.

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I certify that an Examination Committee met on 4<sup>th</sup> April 2003 to conduct the final examination of Ahlam Abd Elhadi on her Doctor of Philosophy thesis entitled "Effects of Structural Adjustment Programs on Saving, Investment and Growth. A Case Study of Sudan" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows.

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## DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledge I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions



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**Ahlam Abd Elhadi Hassan**

Date: 06 MAY 2003

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## LIST OF ABBREVIATIONS

|        |   |
|--------|---|
| IMF    | International Monetary Fund                           |
| WB     | World Bank  |
| ERP    | Economic Recovery Program                             |
| ECRP   | Economic Recovery Program                             |
| ESAP   | Economic Structural Adjustment Programs               |
| SAA    | Sub-Saharan Africa                                    |
| Km     | Kilometer   |
| NESP   | National Economic Salvation Program                   |
| ECRP   | Economic Recovery Program                             |
| Km     | Kilometer   |
| JA     | Joint Account System                                  |
| IA     | Individual Account System                             |
| IFIs   | International Financial Institutions                  |
| FAO    | Food Agricultural Organization                        |
| ISI    | Import Substituting Industrialization                 |
| LDCs   | Less Developing Countries                             |
| OECD   | Organization for Economic Corporation and Development |
| LSDV   | Least Square Dummy Variables                          |
| CPI    | Consumer Price Index                                  |
| ARMA   | Autoregressive Moving Average                         |
| ADF    | Augmented Dickey Fuller                               |
| PP     | Philip Perron   |
| VECM   | Vector Error Correction Model                         |
| VAR    | Vector autoregressive Model                           |
| ECT    | Error correction Terms                                |
| UNCTAD | United Nations Centre for Trade and development       |
| NIPA   | National Income and Product Account                   |
| SDR    | Special drawing Right                                 |
| AIC    | Akaike Information criterion                          |
| SC     | Schwarz Criterion                                     |



## CHAPTER 1

### INTRODUCTION

#### 1.1 Overview of the Study

Most of the developing countries have, in the post World War II years, followed what is generally described as "dirigiste policy prescriptions", where they had to assume a dominant and pervasive role in economic affairs. Following the oil price shocks of the 1970s and 1980s and a series of natural disasters that had stricken most of the Sub-Sahara African (SSA) countries during the same periods, many of the SSA countries embarked on a series of economic policy reforms in order to adjust to these shocks and restore sustainable economic growth. Available evidence tend to suggest that, for a number of reasons, these reforms have not resulted in tangible improvements. It is often claimed that the deleterious economic consequences of these policies in most cases outweighed the market failures they were meant to correct, and as such they have contributed to the low economic growth in SSA during the 1980s. During the last two decades, SSA had by far the worst economic performance among developing countries<sup>1</sup> (Table 1.1). In 1998, for instance, the region's average real per capita income was roughly unchanged from its levels in 1970. Overall, SSA has suffered a chronic failure of economic growth and Sudan's economy is not an exception in this respect. Moreover, saving and investment ratios to GDP are significantly lower in SSA than in other developing countries and too

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<sup>1</sup> Among the Middle East and Europe region as well as Latin America, SSA experienced real per capita income growth of 1-2 percent a year on average during 1970-98. while in Asia. at 4.7 percent a

low to support a sustainable expansion in output. For example, the saving and investment in SSA during 1986–92 were 11.8 percent and 18.6 percent respectively, compared to 24.5 percent for saving and 25.7 for investment in developing countries in general (IMF, 1994)

The growth and performance of each Sub-Sahara African country varies with its ability to adjust to economic shocks to the system. For example,, when shocks like higher world interest rates and drought affect the economies of these SSA, budget imbalances become a common problem. These imbalances were being removed through massive infusion of foreign loans from the International Monetary Fund (IMF) and the World Bank. However, in the post-1980s borrowing from the international banks had become harder and harder for these poor countries. The shocks to interest rates and terms of trade reduced real incomes significantly and, therefore, adjustment meant severe cuts in consumption and government spending.

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year. growth was well above the world average of 2.4 percent.



Table 1.1: Comparative Macroeconomic Performance: SSA, East Asia and Latin America (medians)

| Period  | SSA                 |                            |                    | Latin America       |                            |                    | East Asia           |                            |                    |
|---------|---------------------|----------------------------|--------------------|---------------------|----------------------------|--------------------|---------------------|----------------------------|--------------------|
| Year    | Real GDP Growth (%) | Real Per Capita GDP (US\$) | Exports to GDP (%) | Real GDP Growth (%) | Real Per Capita GDP (US\$) | Exports to GDP (%) | Real GDP Growth (%) | Real Per Capita GDP (US\$) | Exports to GDP (%) |
| 1970-79 | 4.37                | 425                        | 24                 | 4.27                | 1,333                      | 21                 | 7.81                | 555                        | 28                 |
| 1980-84 | 1.78                | 374                        | 26                 | 1.69                | 1,267                      | 22.3               | 7.226               | 923                        | 30.1               |
| 1985-94 | 2.68                | 361                        | 23.1               | 3.43                | 1,372                      | 23.7               | 7.95                | 1393                       | 38.4               |

Source: African Economic Research Consortium Working Papers, 1998